SUB MAN

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<110> Yoshinaga, Steven K.
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<141> 1999-03-08
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ctt tta aca gga gaa atc aat ggc teg gcc gat cat agg atg ttt tca
Leu Leu Thr Gly Glu Ile Asn Gly Ser Ala Asp His Arg Met Phe Ser
                                                                              96
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                                                                              144
ttt cac aat gga ggt gta cag att tct tot tot aaa tac cct gag act gtc
Phe His Asn Gly Gly Val Gln Ile Ser Cys Lys Tyr Pro Glu Thr Val
cag cag tta aaa atg cga ttg ttc aga gag aða gaa gtc ctc tgc gaa
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Gln Gln Leu Lys Met Arg Leu Phe Arg Glu Arg Glu Val Leu Cys Glu
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ctc acc aag acc aag gga agc gga aat gcg gtg toldsymbol{q}c atc aag aat cca
Leu Thr Lys Thr Lys Gly Ser Gly Asn Ala Val Se\chi Ile Lys Asn Pro
atg ctc tgt cta tat cat ctg tca aac aac agc gtc t 
ho tt ttt ttc cta
Met Leu Cys Leu Tyr His Leu Ser Asn Asn Ser Val Ser Phe Phe Leu
aac aac cca gac agc tcc cag gga agc tat tac ttc tgc àgc ctg tcc
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Asn Asn Pro Asp Ser Ser Gln Gly Ser Tyr Tyr Phe Cys Ser Leu Ser
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att ttt gac cca cct cct ttt caa gaa agg aac ctt agt gga {f g}ga tat
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Ile Phe Asp Pro Pro Pro Phe Gln Glu Arg Asn Leu Ser Gly Gly Tyr
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Leu His Ile Tyr Glu Ser Gln Leu Cys Cys Gln Leu Lys Leu Trp Leu
                            135
ccc gta ggg tgt gca gct ttc gtt gtg gta ctc ctt ttt gga tgc ata
Pro Val Gly Cys Ala Ala Phe Val Val Leu Leu Phe Gly Cys Ile
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Phe His A	Asn Gly 35	Gly	Val	Gln	Ile 40	Ser	Cys	Lys	Tyr	Pro 45	Glu	Thr	Val	
Gln Gln L 50	Leu Lys	Met .	Arg	Leu 55	Phe	Arg	Glu	Arg	Glu 60	Val	Leu	Cys	Glu	
Leu Thr L 65	Lys Thr	Lys	Gly 70	Ser	Gly	Asn	Ala	Val 75	Ser	Ile	Lys	Asn	Pro 80	
Met Leu C	Cys Leu	Tyr 85	His	Leu	Ser	Asn	Asn 90	Ser	Val	Ser	Phe	Phe 95	Leu	
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Leu His I 130	le Tyr	Glu	Ser	Gln 135	Leu	Cys	Cys	Gln	Leu 140	Lys	Leu	Trp	Leu	
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Pro Asn S	Ser Glu 180	Tyr I	Met	Phe	Met	Ala 185	Ala	Val	Asn	Thr	Asn 190	Lys	Lys	
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Ala Lys Glu Phe Arg Ala Ser Leu Tyr Lys Gly Val Asn Ser Asp Val

Glu Val Cys Val Gly Asn Gly Asn Phe Thr Tyr Gln Pro Gln Phe Arg 65 70 75 80 Ser Asn Ala Glu Phe Asn Cys Asp Gly Asp Phe Asp Asn Glu Thr Val 85 90 95

Thr Phe Arg Leu Trp Asn Leu His Val Asn His Thr Asp Ile Tyr Phe 100 105 110

Cys Lys Ile Glu Phe Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Arg 115 120 125

Ser Asn Gly Thr Ile Ile His Ile Lys Glu Lys His Leu Cys His Thr 130 135 140

Gln Ser Ser Pro Lys Leu Phe Trp Ala Leu Val Val Ala Gly Val 145 150 155 160

Leu Phe Cys Tyr Gly Leu Leu Val Thr Val Ala Leu Cys Val Ile Trp 165 170 175

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<223> Description of Artificial Sequence:Synthetic Oglionucleotide

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Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Asn Xaa Xaa Val Xaa Phe Xaa Leu 100 105 110

Xaa Asn Xaa Xaa Xaa Xaa Xaa Xaa Tyr Phe Cys Xaa Xaa Xaa 115 120 125

Xaa Xaa Xaa Pro Pro Pro Xaa Xaa Xaa Xaa Xaa Ser Xaa Gly Xaa 130 140

Xaa 145	Xaa	His	Ile	Xaa	Glu 150	Xaa	Xaa	Leu	Cys	Xaa 155	Xaa	Xaa	Xaa	Xaa	Xaa 160	
Lys	Leu	Xaa	Trp	Xaa 165	Leu	Xaa	Val	Xaa	Xaa 170	Xaa	Xaa	Xaa	Phe	Xaa 175	Xaa	
Xaa	Xaa	Leu	Leu 180	Xaa	Xaa	Xaa	Xaa	Leu 185	Xaa	Xaa	Ile	Trp	Xaa 190	Xaa	Xaa	
Xaa	Xaa	Xaa 195	Xaa	Xaa	Xaa	Xaa	Xaa 200	Xaa	Xaa	Xaa	Xaa	Xaa 205	Xaa	Pro	Xaa	
Xaa	Xaa 210	Xaa	Xaa	Xaa	Xaa	Xaa 215	Xaa	Xaa	Xaa	Xaa	Xaa 220	Xaa	Xaa	Xaa	Arg	
Xaa 225	Xaa	Ala	Xaa	Xaa	Xaa 230	Xaa	Xaa	Xaa	Xaa							
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gtt Val	tgg Trp	aag Lys	aag Lys 20	ctc Leu	cat His	gtt Val	tct Ser	agc Ser 25	ggg Gly	ttc Phe	ttt Phe	tct Ser	ggt Gly 30	ctt Leu	ggt Gly	96
ctg Leu	ttc Phe	ttg Leu 35	ctg Leu	ctg Leu	ttg Leu	agc Ser	agc Ser 40	ctc Leu	tgt Cys	gct Ala	gcc Ala	tct Ser 45	gca Ala	gag Glu	act Thr	144
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ccc Pro 65	cac His	aga Arg	cgc Arg	cat His	ttc Phe 70	aac Asn	ttg Leu	agt Ser	ggt Gly	ctg Leu 75	tat Tyr	gtc Val	tat Tyr	tgg Trp	caa Gln 80	240
atc Ile	gaa Glu	aac Asn	cca Pro	gaa Glu 85	gtt Val	tcg Ser	gtg Val	act Thr	tac Tyr 90	tac Tyr	ctg Leu	cct Pro	tac Tyr	aag Lys 95	tct Ser	288
	Gly															336
ctg Leu	gac Asp	tcc Ser 115	atg Met	aag Lys	cag Gln	ggt Gly	aac Asn 120	ttc Phe	tct Ser	ctg Leu	tac Tyr	ctg Leu 125	aag Lys	aat Asn	gtc Val	384
acc Thr	cct Pro	cag Gln	gat Asp	acc Thr	cag Gln	gag Glu	ttc Phe	aca Thr	tgc Cys	cgg Arg	gta Val	ttt Phe	atg Met	aat Asn	aca Thr	432

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				agt Ser 165												528
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				tat Tyr												624
				aat Asn												672
_	_	-	_	aca Thr						_		_		_		720
				gag Glu 245												768
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Leu	Phe	Leu 35	Leu	Leu	Leu	Ser	Ser 40	Leu	Cys	Ala	Ala	Ser 45	Ala	Glu	Thr	

Glu Val Gly Ala Met Val Gly Ser Asn Val Val Leu Ser Cys Ile Asp Pro His Arg Arg His Phe Asn Leu Ser Gly Leu Tyr Val Tyr Trp Gln Ile Glu Asn Pro Glu Val Ser Val Thr Tyr Tyr Leu Pro Tyr Lys Ser 85 90 95 Pro Gly Ile Asn Val Asp Ser Ser Tyr Lys Asn Arg Gly His Leu Ser Leu Asp Ser Met Lys Gln Gly Asn Phe Ser Leu Tyr Leu Lys Asn Val Thr Pro Gln Asp Thr Gln Glu Phe Thr Cys Arg Val Phe Met Asn Thr 135 Ala Thr Glu Leu Val Lys Ile Leu Glu Glu Val Val Arg Leu Arg Val Ala Ala Asn Phe Ser Thr Pro Val Ile Ser Thr Ser Asp Ser Ser Asn Pro Gly Gln Glu Arg Thr Tyr Thr Cys Met Ser Lys Asn Gly Tyr Pro 185 Glu Pro Asn Leu Tyr Trp Ile Asn Thr Thr Asp Asn Ser Leu Ile Asp Thr Ala Leu Gln Asn Asn Thr Val Tyr Leu Asn Lys Leu Gly Leu Tyr 215 Asp Val Ile Ser Thr Leu Arg Leu Pro Trp Thr Ser Arg Gly Asp Val 230 235 225 Leu Cys Cys Val Glu Asn Val Ala Leu His Gln Asn Ile Thr Ser Ile Ser Gln Ala Glu Ser Phe Thr Gly Asn Asn Thr Lys Asn Pro Gln Glu 265 Thr His Asn Asn Glu Leu Lys Val Leu Val Pro Val Leu Ala Val Leu Ala Ala Ala Phe Val Ser Phe Ile Ile Tyr Arg Arg Thr Arg Pro His Arg Ser Tyr Thr Gly Pro Lys Thr Val Gln Leu Glu Leu Thr Asp

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<210> 8

<211> 322

<212> PRT

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<210> 9 <211> 306 <212> PRT <213> mouse

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Gln Val Ser Ser Asp Val Asp Glu Gln Leu Ser Lys Ser Val Lys Asp $35 \hspace{1cm} 40 \hspace{1cm} 45$

Lys Val Leu Leu Pro Cys Arg Tyr Asn Ser Pro His Glu Asp Glu Ser 50 60

Glu Asp Arg Ile Tyr Trp Gln Lys His Asp Lys Val Val Leu Ser Val 65 70 75 80

Ile Ala Gly Lys Leu Lys Val Trp Pro Glu Tyr Lys Asn Arg Thr Leu 85 90 95

Tyr Asp Asn Thr Tyr Ser Leu Ile Ile Leu Gly Leu Val Leu Ser 100 105 110

Asp Arg Gly Thr Tyr Ser Cys Val Val Gln Lys Lys Glu Arg Gly Thr 115 120 125

Tyr Glu Val Lys His Leu Ala Leu Val Lys Leu Ser Ile Lys Ala Asp 130 135 140

Phe Ser Thr Pro Asn Ile Thr Glu Ser Gly Asn Pro Ser Ala Asp Thr 145 150 155 160

Lys Arg Ile Thr Cys Phe Ala Ser Gly Gly Phe Pro Lys Pro Arg Phe 165 170 175

Ser Trp Leu Glu Asn Gly Arg Glu Leu Pro Gly Ile Asn Thr Thr Ile 180 185 190

Ser Gln Asp Pro Glu Ser Glu Leu Tyr Thr Ile Ser Ser Gln Leu Asp 195 200 205

Phe Asn Thr Thr Arg Asn His Thr Ile Lys Cys Leu Ile Lys Tyr Gly 210 215 220

Asp Ala His Val Ser Glu Asp Phe Thr Trp Glu Lys Pro Pro Glu Asp 225 230 235 240

Pro Pro Asp Ser Lys Asn Thr Leu Val Leu Phe Gly Ala Gly Phe Gly 245 250 255

Ala Val Ile Thr Val Val Val Ile Val Val Ile Ile Lys Cys Phe Cys 260 265 270

Lys His Arg Ser Cys Phe Arg Arg Asn Glu Ala Ser Arg Glu Thr Asn 275 280 285

Asn Ser Leu Thr Phe Gly Pro Glu Glu Ala Leu Ala Glu Gln Thr Val 290 295 300

Phe Leu

305

<210> 10

<211> 327 <212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic Oglionucleotide

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Leu Phe Xaa Leu Leu Xaa Xaa Xaa Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa 40

Xaa Xaa Xaa Xaa Xaa Val Xaa Xaa Xaa Val Xaa Leu Xaa Cys Xaa 50 60

Xaa Xaa Xaa Xaa His Xaa Xaa Xaa Ser Xaa Xaa Xaa Xaa Tyr Trp 65 70 75 80

Gln Xaa Xaa Xaa Xaa Xaa Val Xaa Xaa Xaa Xaa Leu Xaa Xaa Xaa 85 90 95

Xaa Xaa Xaa Xaa Val Xaa Xaa Xaa Tyr Lys Asn Arg Xaa Xaa Xaa 100 105 110

Xaa Leu Xaa Xaa Xaa Xaa Xaa Xaa Ser Leu Xaa Xaa Xaa Xaa 115 120 125

Xaa Xaa Xaa Asp Xaa Xaa Xaa Xaa Cys Xaa Val Xaa Xaa Xaa 130 135 140

Xaa Xaa Ala Xaa Phe Ser Thr Pro Xaa Ile Xaa Xaa Ser Xaa Xaa Xaa 165 170 175

Xaa Xaa Xaa Xaa Arg Xaa Xaa Thr Cys Xaa Xaa Xaa Gly Xaa 180 185 190

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Val Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa 255

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asn Xaa Xaa Xaa Xaa Xaa 260 265 270

Xaa	Xaa	Xaa 275	Xaa	Xaa	Xaa	Xaa	Xaa 280	Xaa	Val	Xaa	Val	Xaa 285	Val	Xaa	Xaa	
Xaa	Xaa 290	Xaa	Xaa	Xaa	Xaa	Xaa 295	Xaa	Xaa	Xaa	Phe	Xaa 300	Xaa	Xaa	Xaa	Xaa	
Xaa 305	Arg	Xaa	Xaa	Xaa	Xaa 310	Ser	Xaa	Thr	Xaa	Gly 315	Pro	Xaa	Xaa	Xaa	Xaa 320	
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				cag Gln												96
gtg Val	gag Glu	ctc Leu 35	agc Ser	tgc Cys	gct Ala	tgc Cys	cct Pro 40	gaa Glu	gga Gly	agc Ser	cgt Arg	ttt Phe 45	gat Asp	tta Leu	aat Asn	144
gat Asp	gtt Val 50	tac Tyr	gta Val	tat Tyr	tgg Trp	caa Gln 55	acc Thr	agt Ser	gag Glu	tcg Ser	aaa Lys 60	acc Thr	gtg Val	gtg Val	acc Thr	192
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				ctg Leu 85												288
tcc Ser	ctg Leu	cgc Arg	ttg Leu 100	ttc Phe	aac Asn	gtc Val	acc Thr	ccc Pro 105	cag Gln	gac Asp	gag Glu	cag Gln	aag Lys 110	ttt Phe	cac His	336
tgc Cys	ctg Leu	gtg Val 115	ttg Leu	agc Ser	caa Gln	tcc Ser	ctg Leu 120	gga Gly	ttc Phe	cag Gln	gag Glu	gtt Val 125	ttg Leu	agc Ser	gtt Val	384
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gcc Ala 145	ccc Pro	cac His	agc Ser	ccc Pro	tcc Ser 150	cag Gln	gat Asp	gag Glu	ctc Leu	acc Thr 155	ttc Phe	acg Thr	tgt Cys	aca Thr	tcc Ser 160	480
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ccc agc gtg a Pro Ser Val a 210		Gly											672
aac ctg act of Asn Leu Thr N													720
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tgg agc atc of Trp Ser Ile 1													816
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Leu Thr Glu Asn Pro Val Ser Thr Gly Glu Lys Asn Ala Ala Thr Ser Ile Gly Trp Val Cys Arg Asp Arg Cys Leu Ual Val Val Val Ala Z70

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50 60

Met Ser Pro Ala Gly Met Leu Arg Gly Asp Phe Ser Leu Arg Leu Phe 65 70 75 80

Asn Val Thr Pro Gln Asp Glu Gln Lys Phe His Cys Leu Val Leu Ser

Gln Ser Leu Gly Phe Gln Glu Val Leu Ser Val Glu Val Thr Leu His 100 105 110

Val Ala Ala Asn Phe Ser Val Pro Val Val Ser Ala Pro His Ser Pro 115 120 125

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45
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65
Asn Val Thr Pro Gln Asp Thr Gln Glu Phe Thr Cys Arg Val Phe Met
95
Asn Thr Ala Thr Glu Leu Val Lys Ile Leu Glu Glu Val Val Arg Leu
Arg Val Ala Ala Asn Phe Ser Thr Pro Val Ile Ser Thr Ser Asp Ser
Ser Asn Pro Gly Gln Glu Arg Thr Tyr Thr Cys Met Ser Lys Asn Gly
135
Tyr Pro Glu Pro Asn Leu Tyr Trp Ile Asn Thr Asp Asn Ser Leu
Arg Val Ala Leu Gln Asn Asn Thr Val Tyr Leu Asn Lys Leu
166
Ile Asp Thr Ala Leu Gln Asn Asn Thr Val Tyr Leu Asn Lys Leu
167
Ile Asp Thr Ala Leu Gln Asn Asn Thr Val Tyr Leu Asn Lys Leu
167
Ile Asp Thr Ala Leu Gln Asn Asn Thr Val Tyr Leu Asn Lys Leu
175

Leu Tyr Asp Val Ile Ser Thr Leu Arg Leu Pro Trp Thr Ser Arg Gly

190 185 180 Asp Val Leu Cys Cys Val Glu Asn Val Ala Leu His Gln Asn Ile Thr Ser Ile Ser Gln Ala Glu Ser Phe Thr Gly Asn Asn Thr Lys Asn Pro Gln Glu Thr His Asn Asn Glu Leu Lys Val Leu Val Pro Val Leu Ala 235 230 Val Leu Ala Ala Ala Phe Val Ser Phe Ile Ile Tyr Arg Arg Thr Arg Pro His Arg Ser Tyr Thr Gly Pro Lys Thr Val Gln Leu Glu Leu Thr Asp His Ala 275 <210> 15 <211> 280 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Synthetic Oglionucleotide <400> 15 Glu Xaa Glu Val Xaa Ala Met Gly Val Ser Xaa Val Xaa Leu Ser Cys Xaa Xaa Pro Xaa Xaa Xaa Xaa Phe Xaa Leu Xaa Xaa Xaa Tyr Val Tyr Trp Gln Xaa Xaa Xaa Xaa Xaa Xaa Val Thr Tyr Xaa Xaa Pro Xaa Xaa Ser Xaa Xaa Xaa Asn Val Asp Ser Xaa Tyr Xaa Asn Arg Xaa Xaa Xaa Ser Xaa Xaa Xaa Met Xaa Xaa Gly Xaa Phe Ser Leu Xaa Leu Xaa Asn Val Thr Pro Gln Asp Xaa Gln Xaa Phe Xaa Cys Xaa Val Xaa Xaa 90 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Xaa Xaa Xaa Val Xaa Leu 105 Xaa Val Ala Ala Asn Phe Ser Xaa Pro Val Xaa Ser Xaa Xaa Xaa Ser Xaa Xaa Xaa Xaa Glu Xaa Thr Xaa Thr Cys Xaa Ser Xaa Asn Gly Tyr Pro Xaa Pro Asn Xaa Tyr Trp Ile Asn Xaa Thr Asp Asn Ser Leu 150 Xaa Asp Xaa Ala Leu Gln Asn Xaa Thr Val Xaa Leu Asn Xaa Xaa Gly 170



Leu Tyr Asp Val Xaa Ser Xaa Leu Arg Xaa Xaa Xaa Thr Xaa Xaa Xaa 180 185 190
Xaa Xaa Xaa Cys Cys Xaa Glu Asn Val Xaa Leu Xaa Gln Asn Xaa Thr 195 200 205
Xaa Xaa Ser Gln Xaa Xaa Xaa Xaa Gly Xaa Xaa Lys Xaa Xaa Xaa 210 215 220
Xaa Xaa Xaa Xaa Xaa Xaa Lys Xaa Xaa Xaa Xaa Xaa Xaa Leu 225 230 235 240
Ala Val Leu Xaa Xaa Xaa Xaa Val Xaa Xaa Ile Xaa Xaa Xaa 245 250 255
Xaa Arg Xaa Arg Xaa Xaa Xaa Ser Tyr Xaa Gly Xaa Xaa Xaa Xaa 260 265 270
Xaa Xaa Xaa Xaa Xaa Xaa 275 280
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tetecegegg eccaagttet eegegeeeeg aggteteege geeeegaggt eteegeggee 180
cgaggtctcc gcccgcacc atg cgg ctg ggc agt cct gga ctg ctc ttc ctg 232 Met Arg Leu Gly Ser Pro Gly Leu Leu Phe Leu 1 5 10
ctc ttc agc agc ctt cga gct gat act cag gag aag gaa gtc aga gcg 280 Leu Phe Ser Ser Leu Arg Ala Asp Thr Gln Glu Lys Glu Val Arg Ala 15 20 25
atg gta ggc agc gac gtg gag ctc agc tgc gct tgc cct gaa gga agc 328 Met Val Gly Ser Asp Val Glu Leu Ser Cys Ala Cys Pro Glu Gly Ser 30 35 40
cgt ttt gat tta aat gat gtt tac gta tat tgg caa acc agt gag tcg 376 Arg Phe Asp Leu Asn Asp Val Tyr Val Tyr Trp Gln Thr Ser Glu Ser 45 50 55
aaa acc gtg gtg acc tac cac atc cca cag aac agc tcc ttg gaa aac 424
Lys Thr Val Val Thr Tyr His Ile Pro Gln Asn Ser Ser Leu Glu Asn 60 65 70 75

				80					85					90		
ctg Leu	cgg Arg	ggc Gly	gac Asp 95	ttc Phe	tcc Ser	ctg Leu	cgc Arg	ttg Leu 100	ttc Phe	aac Asn	gtc Val	acc Thr	ccc Pro 105	cag Gln	gac Asp	520
gag Glu	cag Gln	aag Lys 110	ttt Phe	cac His	tgc Cys	ctg Leu	gtg Val 115	ttg Leu	agc Ser	caa Gln	tcc Ser	ctg Leu 120	gga Gly	ttc Phe	cag Gln	568
gag Glu	gtt Val 125	ttg Leu	agc Ser	gtt Val	gag Glu	gtt Val 130	aca Thr	ctg Leu	cat His	gtg Val	gca Ala 135	gca Ala	aac Asn	ttc Phe	agc Ser	616
gtg Val 140	ccc Pro	gtc Val	gtc Val	agc Ser	gcc Ala 145	ccc Pro	cac His	agc Ser	ccc Pro	tcc Ser 150	cag Gln	gat Asp	gag Glu	ctc Leu	acc Thr 155	664
ttc Phe	acg Thr	tgt Cys	aca Thr	tcc Ser 160	ata Ile	aac Asn	ggc Gly	tac Tyr	ccc Pro 165	agg Arg	ccc Pro	aac Asn	gtg Val	tac Tyr 170	tgg Trp	712
atc Ile	aat Asn	aag Lys	acg Thr 175	gac Asp	aac Asn	agc Ser	ctg Leu	ctg Leu 180	gac Asp	cag Gln	gct Ala	ctg Leu	cag Gln 185	aat Asn	gac Asp	760
acc Thr	gtc Val	ttc Phe 190	ttg Leu	aac Asn	atg Met	cgg Arg	ggc Gly 195	ttg Leu	tat Tyr	gac Asp	gtg Val	gtc Val 200	agc Ser	gtg Val	ctg Leu	808
agg Arg	atc Ile 205	gca Ala	cgg Arg	acc Thr	ccc Pro	agc Ser 210	gtg Val	aac Asn	att Ile	ggc Gly	tgc Cys 215	tgc Cys	ata Ile	gag Glu	aac Asn	856
gtg Val 220	ctt Leu	ctg Leu	cag Gln	cag Gln	aac Asn 225	ctg Leu	act Thr	gtc Val	ggc Gly	agc Ser 230	cag Gln	aca Thr	gga Gly	aat Asn	gac Asp 235	904
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aaa Lys	aac Asn	gcg Ala	gcc Ala 255	acg Thr	tgg Trp	agc Ser	atc Ile	ctg Leu 260	gct Ala	gtc Val	ctg Leu	tgc Cys	ctg Leu 265	ctt Leu	gtg Val	1000
gtc Val	gtg Val	gcg Ala 270	gtg Val	gcc Ala	ata Ile	ggc Gly	tgg Trp 275	gtg Val	tgc Cys	agg Arg	gac Asp	cga Arg 280	tgc Cys	ctc Leu	caa Gln	1048
cac His	agc Ser 285	tat Tyr	gca Ala	ggt Gly	gcc Ala	tgg Trp 290	gct Ala	gtg Val	agt Ser	ccg Pro	gag Glu 295	aca Thr	gag Glu	ctc Leu	act Thr	1096
	cac His		tga	ccgg	agc 1	tcac	cgcc	ca g	agcg	tgga	c ag	ggct	tccg			1145
tga	gacgo	cca (ccgt	gaga	gg c	cagg	tggca	a gc	ttga	gcat	gga	ctcc	cag a	actg	cagggg	1205
agc	actt	ggg (gcag	cccc	ca g	aagg	acca	c tg	ctgg	atcc	cag	ggag	aac (ctgc	tggcgt	1265
tgg	ctgt	gat	cctg	gaat	ga g	gccc [.]	tttc									1294



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<212> PRT

<213> Human

<400> 17

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Arg Ala Asp Thr Gln Glu Lys Glu Val Arg Ala Met Val Gly Ser Asp

Val Glu Leu Ser Cys Ala Cys Pro Glu Gly Ser Arg Phe Asp Leu Asn 35 40 45

Asp Val Tyr Val Tyr Trp Gln Thr Ser Glu Ser Lys Thr Val Val Thr 50 55 60

Tyr His Ile Pro Gln Asn Ser Ser Leu Glu Asn Val Asp Ser Arg Tyr 65 70 75 80

Arg Asn Arg Ala Leu Met Ser Pro Ala Gly Met Leu Arg Gly Asp Phe 85 90 95

Ser Leu Arg Leu Phe Asn Val Thr Pro Gln Asp Glu Gln Lys Phe His 100 105 110

Cys Leu Val Leu Ser Gln Ser Leu Gly Phe Gln Glu Val Leu Ser Val 115 120 125

Glu Val Thr Leu His Val Ala Ala Asn Phe Ser Val Pro Val Val Ser 130 135 140

Ala Pro His Ser Pro Ser Gln Asp Glu Leu Thr Phe Thr Cys Thr Ser 145 150 155 160

Ile Asn Gly Tyr Pro Arg Pro Asn Val Tyr Trp Ile Asn Lys Thr Asp 165 170 175

Asn Ser Leu Leu Asp Gln Ala Leu Gln Asn Asp Thr Val Phe Leu Asn 180 185 190

Met Arg Gly Leu Tyr Asp Val Val Ser Val Leu Arg Ile Ala Arg Thr
195 200 205

Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn Val Leu Leu Gln Gln 210 215 220

Asn Leu Thr Val Gly Ser Gln Thr Gly Asn Asp Ile Gly Glu Arg Asp 225 230 235 240

Lys Ile Thr Glu Asn Pro Val Ser Thr Gly Glu Lys Asn Ala Ala Thr 245 250 255

Trp Ser Ile Leu Ala Val Leu Cys Leu Leu Val Val Ala Val Ala 260 265 270

Ile Gly Trp Val Cys Arg Asp Arg Cys Leu Gln His Ser Tyr Ala Gly 275 280 285

Ala Trp Ala Val Ser Pro Glu Thr Glu Leu Thr Gly His Val 290 295 300 <210> 18 <211> 302

<212> PRT <213> Human

<400> 18

Met Arg Leu Gly Ser Pro Gly Leu Leu Phe Leu Leu Phe Ser Ser Leu
1 5 10 15

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Val Glu Leu Ser Cys Ala Cys Pro Glu Gly Ser Arg Phe Asp Leu Asn 35 40 45

Asp Val Tyr Val Tyr Trp Gln Thr Ser Glu Ser Lys Thr Val Val Thr 50 60

Tyr His Ile Pro Gln Asn Ser Ser Leu Glu Asn Val Asp Ser Arg Tyr 65 70 75 80

Arg Asn Arg Ala Leu Met Ser Pro Ala Gly Met Leu Arg Gly Asp Phe 85 90 95

Ser Leu Arg Leu Phe Asn Val Thr Pro Gln Asp Glu Gln Lys Phe His 100 105 110

Cys Leu Val Leu Ser Gln Ser Leu Gly Phe Gln Glu Val Leu Ser Val 115 120 125

Glu Val Thr Leu His Val Ala Ala Asn Phe Ser Val Pro Val Val Ser 130 135 140

Ala Pro His Ser Pro Ser Gln Asp Glu Leu Thr Phe Thr Cys Thr Ser 145 150 155 160

Ile Asn Gly Tyr Pro Arg Pro Asn Val Tyr Trp Ile Asn Lys Thr Asp 165 170 175

Asn Ser Leu Leu Asp Gln Ala Leu Gln Asn Asp Thr Val Phe Leu Asn 180 185 190

Met Arg Gly Leu Tyr Asp Val Val Ser Val Leu Arg Ile Ala Arg Thr 195 200 205

Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn Val Leu Leu Gl
n Gl
n 210 215 220

Asn Leu Thr Val Gly Ser Gln Thr Gly Asn Asp Ile Gly Glu Arg Asp 225 230 235 240

Lys Ile Thr Glu Asn Pro Val Ser Thr Gly Glu Lys Asn Ala Ala Thr 245 250 255

Trp Ser Ile Leu Ala Val Leu Cys Leu Leu Val Val Ala Val Ala 260 265 270

Ile Gly Trp Val Cys Arg Asp Arg Cys Leu Gln His Ser Tyr Ala Gly 275 280 285

Ala Trp Ala Val Ser Pro Glu Thr Glu Leu Thr Gly His Val 290 295 300 <210> 19 <211> 322 <212> PRT

<213> mouse

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His Arg Ser Tyr Thr Gly Pro Lys Thr Val Gln Leu Glu Leu Thr Asp 305 310 315

His Ala

<210> 20

<211> 329

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Synthetic
 Oglionucleotide

<400> 20

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Glu Val Xaa Ala Met Val Gly Ser Xaa Val Xaa Leu Ser Cys Xaa Xaa 50 60

Pro Xaa Xaa Xaa Phe Xaa Leu Xaa Xaa Xaa Tyr Val Tyr Trp Gln 65 70 75 80

Xaa Xaa Xaa Xaa Xaa Xaa Val Thr Tyr Xaa Xaa Pro Xaa Xaa Ser 85 90 95

Xaa Xaa Xaa Asn Val Asp Ser Xaa Tyr Xaa Asn Arg Xaa Xaa Xaa Ser 100 105 110

Xaa Xaa Xaa Met Xaa Xaa Gly Xaa Phe Ser Leu Xaa Leu Xaa Asn Val 115 120 125

Thr Pro Gln Asp Xaa Gln Xaa Phe Xaa Cys Xaa Val Xaa Xaa Xaa 130 140

Xaa Xaa Xaa Xaa Xaa Xaa Leu Xaa Xaa Xaa Val Xaa Leu Xaa Val 145 150 160

Ala Ala Asn Phe Ser Xaa Pro Val Xaa Ser Xaa Xaa Xaa Ser Xaa Xaa 165 170 175

Xaa Xaa Xaa Glu Xaa Thr Xaa Thr Cys Xaa Ser Xaa Asn Gly Tyr Pro 180 185 190

Xaa Pro Asn Xaa Tyr Trp Ile Asn Xaa Thr Asp Asn Ser Leu Xaa Asp 195 200 205

Xaa Ala Leu Gln Asn Xaa Thr Val Xaa Leu Asn Xaa Xaa Gly Leu Tyr 210 215 220

Asp Val Xaa Ser Xaa Leu Arg Xaa Xaa Xaa Thr Xaa Xaa Xaa Xaa 225 230 235 240

Xaa Cys Cys Xaa Glu Asn Val Xaa Leu Xaa Gln Asn Xaa Thr Xaa Xaa

245 250 255 Ser Gln Xaa Xaa Xaa Xaa Gly Xaa Xaa Lys Xaa Xaa Xaa Xaa 265 Xaa Xaa Xaa Xaa Xaa Xaa Lys Xaa Xaa Xaa Xaa Xaa Xaa Leu Ala 280 Val Leu Xaa Xaa Xaa Xaa Xaa Val Xaa Xaa Xaa Ile Xaa Xaa Xaa Xaa 295 Arg Xaa Arg Xaa Xaa Xaa Ser Tyr Xaa Gly Xaa Xaa Xaa Val Xaa 315 Xaa Glu Xaa Xaa Leu Thr Xaa His Xaa 325 <210> 21 <211> 1370 <212> DNA <213> Human <220> <221> 5'UTR <222> (1)..(165) <220> <221> CDS <222> (166)..(762) <400> 21aacaatttca cacaqqaaac aqctatqacc atgattacgc caagctctaa tacgactcac 60 tatagggaaa gctggtacgc ctgcaggtac cggtccggaa ttcccgggtc gacccacgcg 120 tccgtgaaca ctgaacgcga ggactgttaa ctgtttctgg caaac atg aag tca ggc 177 Met Lys Ser Gly ctc tgg tat ttc ttt ctc ttc tgc ttg cgc att aaa gtt tta aca gga 225 Leu Trp Tyr Phe Phe Leu Phe Cys Leu Arg Ile Lys Val Leu Thr Gly 10 273 gaa atc aat ggt tct gcc aat tat gag atg ttt ata ttt cac aac gga Glu Ile Asn Gly Ser Ala Asn Tyr Glu Met Phe Ile Phe His Asn Gly 30 ggt gta caa att tta tgc aaa tat cct gac att gtc cag caa ttt aaa 321 Gly Val Gln Ile Leu Cys Lys Tyr Pro Asp Ile Val Gln Gln Phe Lys atg cag ttg ctg aaa ggg ggg caa ata ctc tgc gat ctc act aag aca Met Gln Leu Lys Gly Gly Gln Ile Leu Cys Asp Leu Thr Lys Thr 369 aaa gga agt gga aac aca gtg tcc att aag agt ctg aaa ttc tgc cat Lys Gly Ser Gly Asn Thr Val Ser Ile Lys Ser Leu Lys Phe Cys His tct cag tta tcc aac aac agt gtc tct ttt ttt cta tac aac ttg gac 465 Ser Gln Leu Ser Asn Asn Ser Val Ser Phe Phe Leu Tyr Asn Leu Asp 85 90 95

cat His	tct Ser	cat His	gcc Ala	aac Asn 105	tat Tyr	tac Tyr	ttc Phe	tgc Cys	aac Asn 110	cta Leu	tca Ser	att Ile	ttt Phe	gat Asp 115	cct Pro	513
cct Pro	cct Pro	ttt Phe	aaa Lys 120	gta Val	act Thr	ctt Leu	aca Thr	gga Gly 125	gga Gly	tat Tyr	ttg Leu	cat His	att Ile 130	tat Tyr	gaa Glu	561
tca Ser	caa Gln	ctt Leu 135	tgt Cys	tgc Cys	cag Gln	ctg Leu	aag Lys 140	ttc Phe	tgg Trp	tta Leu	ccc Pro	ata Ile 145	gga Gly	tgt Cys	gca Ala	609
gcc Ala	ttt Phe 150	gtt Val	gta Val	gtc Val	tgc Cys	att Ile 155	ttg Leu	gga Gly	tgc Cys	ata Ile	ctt Leu 160	att Ile	tgt Cys	tgg Trp	ctt Leu	657
aca Thr 165	aaa Lys	aag Lys	aag Lys	tat Tyr	tca Ser 170	tcc Ser	agt Ser	gtg Val	cac His	gac Asp 175	cct Pro	aac Asn	ggt Gly	gaa Glu	tac Tyr 180	705
atg Met	ttc Phe	atg Met	aga Arg	gca Ala 185	gtg Val	aac Asn	aca Thr	gcc Ala	aaa Lys 190	aaa Lys	tct Ser	aga Arg	ctc Leu	aca Thr 195	gat Asp	753
ata																
	acc Thr		taat	tatg	gaa d	ctcto	ggcac	cc ca	aggca	atgaa	a gca	acgtt	ggc			802
Val	Thr	Leu												agagt	cctgac	
Val	Thr	Leu cct (caact	tgaa	ag to	gcaag	gatto	c tct	tatt	tcc	ggga	accad	cgg a		ctgac cagtc	862
Val cagt ttaa	Thr tttto actao	Leu ect o	caact	ctgaa cttc!	ag to	gcaag	gatto	c tct	ctatt ccaat	tcc	ggga gaag	accad gaatq	egg a	tgtat		862 922
Val cagt ttaa aatg	Thr tttt actao gggga	Leu cct o cat a	caact acato ttaao	ttgaa cttct cagaa	ag to	gcaaq tggtq ccttq	gatto gtttt ggtao	c tet c gtt	ctatt ccaat	tcc cctg	ggga gaag tcto	accad gaatq caaaa	egg a gac t	tgtat aacad	cagtc	862 922 982
Val cagt ttaa aatg tgca	Thr tttt actac gggga aacca	Leu cct d cat a att 1 agc 1	caact acato ttaao tttgg	ctgaa cttct cagaa gagaa	ag to tg ct ct go	gcaag tggtg ccttg cccag	gatto gtttt ggtao gctco	c tet gtt c tgd	tatt caat ccgaq cgtgo	etce ectg gtcc etca	ggga gaag tcto	accad gaatq caaad ggagt	egg a gac d aca a	tgtat aacad aatcd	cagtc	862 922 982 1042
Val cagt ttaa aatg tgca	Thr tttc actac gggga aacca	Leu cet de cat a att de cet de	caact acato ttaao tttgg	etgaa ettet eagaa gagaa tagea	ag to	gcaag tggtg cettg cecag	gatto gtttt ggtao gctco	tet gtt c tgc c tgt	ctatt ccaat ccgaq cgtgq	ctcc cctg gtcc ctca	ggga gaag tete etgg	accad gaatq caaaa ggagt	egg a gac d aca a egg a	tgtat aacad aatcd aagaa	cagtc ccctct	862 922 982 1042 1102
Val cagt ttaa aatg tgca tcca	Thr tttc actac gggga acca acatc	Leu cat a att 1 agc 1 ctg c	caact acato ttaao tttgo ctcct gccao	ctgaa cttct cagaa gagaa cagca	ag tog ct go ct go aa go tog ct a ct	gcaag tggtg ccttg cccag gcato tgaat	yatto ytttt ygtao yeteo cageo	c tot c gtt c tgo c tgt c agt	ctatt ccaat ccgaq cgtgq caaaa	etec ectg gtcc etca acaa	ggga gaag teto etgg acad agca	accad gaatq caaaa ggagt cattt	cgg a gac d aca a cgg a cac a	tgtat aacad aatcd aagaa gacca	ccagtc ccctct cctgtc	862 922 982 1042 1102 1162
Val cagt ttaa aatg tgca tcca tttt	Thr actac actac accac acatc caaac	Leu cot (cat a att dage datt dage dage datt dage dage dage dage dage dage dage dage	caact acato ttaao tttgg ctcct gccao tcact	etgaa ettet eagaa gagaa eagea ggggt	ag to	gcaag eggtg ecttg eccag gcato egaat	yatto yttti ygtao yctco cagco cctgo	tott	ctaticaat ccaat ccgaç cgtgo caaaa agcaa	etcc ectg gtcc etca acaa aatg	ggga gaag tctc ctgg acad agca	accad gaatq caaaa ggagt cattt agcca	gac daca a cag a cac a cag a cac a cag a cac a cag a cac a cac a cag a cac a c	tgtat aacac aatcc aagaa aagaa gacca	ccagtc ccctct cctgtc aaaatg	862 922 982 1042 1102 1162 1222
Val cagt ttaa aatg tgca tcca tttt tgtc	Thr ttto actao gggga acca acato caaao ccgca agtca	Leu cat a att dage datt dage datt dage datt dage datt dage dage dage dage dage dage dage dage	caact acato ttaao tttgg ctcct gccao tcact	etgaa ettet eagaa gagaa eagea ggggt eatea	ag to	gcaag cgttg ccttg cccag gcato tgaat ctaco	yatto yttti ygtao yctco cagco cctgo ctcti	e tot gtt gtt gtt gtg gt gt gt gt gt gt gt g	ctati ccaat ccgag cgtgo caaaa agcaa ctctg	etcc ectg gtcc etca acaa aatg gtag	ggga gaag tctc ctgg acad agca ggat	accad gaatq caaaa ggagt cattt agcca cgaga	gac daca a cag daag daag daag daag daag	tgtat aacac aatcc aagaa gacca tcctc	ccagtc cctct cctgtc aaaatg agcatc	862 922 982 1042 1102 1162 1222 1282

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<211> 199

<212> PRT

<213> Human

<400> 22

Met Lys Ser Gly Leu Trp Tyr Phe Phe Leu Phe Cys Leu Arg Ile Lys 1 5 10 15

Val Leu Thr Gly Glu Ile Asn Gly Ser Ala Asn Tyr Glu Met Phe Ile 20 25 30

Phe His Asn Gly Gly Val Gln Ile Leu Cys Lys Tyr Pro Asp Ile Val 35 40 45

Gln Gln Phe Lys Met Gln Leu Leu Lys Gly Gln Ile Leu Cys Asp

Leu Thr Lys Thr Lys Gly Ser Gly Asn Thr Val Ser Ile Lys Ser Leu 80

Lys Phe Cys His Ser Gln Leu Ser Asn Asn Ser Val Ser Phe Phe Leu 95

Tyr Asn Leu Asp His Ser His Ala Asn Tyr Tyr Phe Cys Asn Leu Ser 110

Ile Phe Asp Pro Pro Pro Phe Lys Val Thr Leu Thr Gly Gly Tyr Leu 125

His Ile Tyr Glu Ser Gln Leu Cys Cys Gln Leu Lys Phe Trp Leu Pro 130

Ile Gly Cys Ala Ala Phe Val Val Val Cys Ile Leu Gly Cys Ile Leu 145

Tyr Asn Gly Glu Tyr Met Phe Met Arg Ala Val Asn Thr Ala Lys Lys Ser 180

Arg Leu Thr Asp Val Thr Leu

<210> 23 <211> 199 <212> PRT

<213> Human



Ile Gly Cys Ala Ala Phe Val Val Val Cys Ile Leu Gly Cys Ile Leu 145 150 155 160

Ile Cys Trp Leu Thr Lys Lys Lys Tyr Ser Ser Ser Val His Asp Pro 165° 170 175

Asn Gly Glu Tyr Met Phe Met Arg Ala Val Asn Thr Ala Lys Lys Ser 180 185 190

Arg Leu Thr Asp Val Thr Leu
195

<210> 24

<211> 200

<212> PRT

<213> mouse

<400> 24

Met Lys Pro Tyr Phe Cys Arg Val Phe Val Phe Cys Phe Leu Ile Arg 1 5 10 15

Leu Leu Thr Gly Glu Ile Asn Gly Ser Ala Asp His Arg Met Phe Ser 20 25 30

Phe His Asn Gly Gly Val Gln Ile Ser Cys Lys Tyr Pro Glu Thr Val 35 40 45

Gln Gln Leu Lys Met Arg Leu Phe Arg Glu Arg Glu Val Leu Cys Glu 50 55 60

Leu Thr Lys Thr Lys Gly Ser Gly Asn Ala Val Ser Ile Lys Asn Pro 65 70 75 80

Met Leu Cys Leu Tyr His Leu Ser Asn Asn Ser Val Ser Phe Phe Leu 85 90 95

Asn Asn Pro Asp Ser Ser Gln Gly Ser Tyr Tyr Phe Cys Ser Leu Ser 100 105 110

Ile Phe Asp Pro Pro Pro Phe Gln Glu Arg Asn Leu Ser Gly Gly Tyr 115 120 125

Leu His Ile Tyr Glu Ser Gln Leu Cys Cys Gln Leu Lys Leu Trp Leu 130 135 140

Pro Val Gly Cys Ala Ala Phe Val Val Leu Leu Phe Gly Cys Ile 145 150 155 160

Leu Ile Ile Trp Phe Ser Lys Lys Lys Tyr Gly Ser Ser Val His Asp 165 170 175

Pro Asn Ser Glu Tyr Met Phe Met Ala Ala Val Asn Thr Asn Lys Lys 180 185 190

Ser Arg Leu Ala Gly Val Thr Ser 195 200

<210> 25

<211> 24

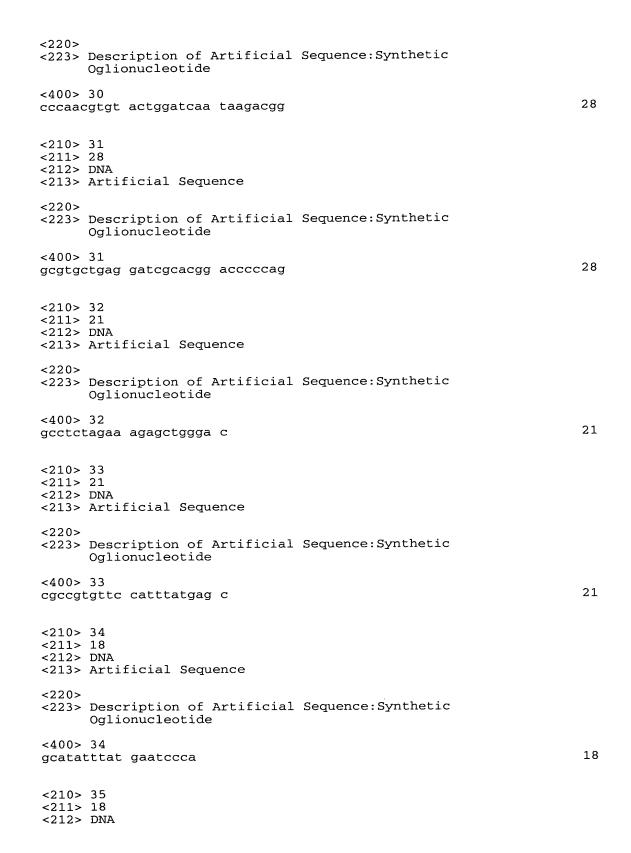
<212> DNA

<213> Artificial Sequence





<220> <223>	Description of Artificial Oglionucleotide	Sequence:Synthetic	
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<210><211><211><212><213>	23		
<220> <223>	Description of Artificial Oglionucleotide	Sequence:Synthetic	
<400> tggtga	26 accta ccacatecca cag		23
<210><211><211><212><213>	23		
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<400> tccgat	27 Egtca tttcctgtct ggc		23
<210><211><211><212><212><213>	24		
<220> <223>	Description of Artificial Oglionucleotide	Sequence: Synthetic	
<400> gctctg	28 gtctc cggactcaca gccc		24
<210><211><211><212><213>	28		
<220> <223>	Description of Artificial Oglionucleotide	Sequence: Synthetic	
<400> gtggca	29 agcaa acttcagcgt gcccgtcg		28
<210><211><211><212><213>	28		







<213> Artificial Sequence

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<220>

<223> Description of Artificial Sequence:Synthetic
 Oglionucleotide

<400> 35 actattaggg tcatgcac

18

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